Ernst & Young LLP

Verizon Massachusetts
Performance Assurance Plan (PAP)
Attestation Engagement

Summary of Examination Approach

June 2005

Background

The Massachusetts Department of Telecommunications and Energy ("DTE") Performance Assurance Plan ("PAP") requires Verizon Communications Inc. ("Verizon") to comply with specific data and reporting requirements within the state of Massachusetts. These requirements include reporting on certain performance metrics in six specific domains: Pre-Order, Order, Provisioning, Maintenance and Repair, Network Performance and Billing. These domains combined have resulted in 209 fully disaggregated metrics for the September 2004 data month ("Evaluation Period"). All but a few of the metrics outlined within the PAP are a subset of the Carrier to Carrier metrics utilized within the state of New York and most other eastern states in Verizon's service area. Verizon engaged Ernst & Young ("E&Y"), the firm selected by the DTE, to evaluate Verizon's compliance with the PAP for the Evaluation Period.

These metrics are generated from highly complex processes involving multiple Operational Support Systems ("OSS") and intermediate systems. Additionally, all metrics are reported through Verizon's proprietary metric reporting engine (the "reporting engine"). The reporting engine obtains raw data from several OSS and the data are filtered ("exclusions") based on specific performance metric guidelines ("guidelines") set forth in the PAP. The metrics included in the PAP are specifically listed in the appendices of the PAP. Additionally, the metric results for each month are processed through an additional calculation to determine whether a bill credit should be applied. The rules for this calculation are also outlined in the appendices of the PAP.

The following outlines the scope and approach E&Y deployed in connection with this engagement. The information contained within this document is for informational purposes only and is not, and should not be considered part of the Report of Independent Accountants.

Upon completion of our procedures, we issued an attestation opinion on management's assertion that Verizon Massachusetts complied with the PAP. Our report was issued in accordance with the Attestation Standards of the American Institute of Certified Public Accountants.

Scope

E&Y performed procedures necessary to evaluate the data collection processes used by Verizon in reporting its performance metrics in the state of Massachusetts during the Evaluation Period. E&Y's testing focused on whether the reported results were complete and accurate as well as whether the underlying processes and systems Verizon utilized to collect and process data for the purposes of reporting performance metrics were effective. E&Y's testing did not evaluate Verizon performance related to the metrics included within the PAP.

The following processes were included within the scope of this engagement:

1. Data Collection
2. Data Retention and Security
3. Data Transformation (application of metric guidelines)
4. Result Calculation and Scoring
5. Bill Credit Calculation
6. Result Publication

Approach

E&Y's approach ensured that all metrics were examined. E&Y's procedures began with data gathered within metric reporting engine. We tested a sample of transactions by domain to ensure the metric guidelines were appropriately applied, metric results were calculated accurately, scoring and bill credit calculations were materially accurate and metric reports were filed in a timely manner for the Evaluation Period.

E&Y's detailed procedures are noted below.

Process Flow / Activity Dictionary / Narratives

The process flows and activity dictionaries were created based on interviews and walkthroughs with Verizon subject matter experts to obtain an understanding of transactional processing employed to validate all data is:

- received,
- recorded and valid,
- accumulated and classified appropriately,
- secure and only subject to change when appropriate; and,
- reported accurately.

The process flows document our understanding of the flow of data utilized in the metric reporting process for each domain. The related activity dictionaries provide detailed descriptions of the systemic or manual processes noted within the process flow and identify the data inputs and outputs throughout the process. Within this documentation, we identified the location of the metric guideline exclusions and the systemic location of the metric calculation. Additionally, these documents are reviewed for completeness and accuracy, as well as approved, by the respective Vice Presidents, by domain, within the Company.

Additionally, these procedures include documentation related to our understanding of the processes and controls surrounding the reporting engine environment including source data transfer, data loading, reporting, scoring, and bill credit calculation.

Transaction Testing

For each domain, E&Y either selected a random sample of 100 wholesale and 100 retail transactions for the Evaluation Period or, where volumes were low (less than 100 observations), performed 100% validation of the metric results. For all samples of transactions tested, E&Y obtained the data directly from the "pull point" (metric reporting engine), the point data is gathered for metric reporting purposes prior to any manipulations/derivations. The transactions selected were representative of all products reported under the PAP (UNE Platform, UNE Loop, Resale, DSL, and Trunks). In instances where the sample selected was not representative of all products measured, we judgmentally selected five additional transactions for the applicable product from the population for inclusion within the testing sample.

For each sample transaction chosen, we independently validated whether the transaction was properly included in or excluded from each of the sub-metric results for which the transaction is eligible. The validation process included comparing our testing results, at the sub-metric level, to the results reported by Verizon and filed with the DTE for the Evaluation Period. We validated inclusion or exclusion of each sampled transaction in the filed results, as well as the appropriate values for any calculated numerators (e.g., trouble duration days, response times, etc.). For those transactions that are excluded, we noted within our testing the reason the transaction was excluded from the reported metric guidelines.

Recalculation of Metric Results

To test whether the reporting engine utilized for the calculation of the metric results was operating effectively, we obtained data from the data mart as well as the systemic logic utilized to calculate the metric results. Upon receipt of the information, we performed the following:

1. Reviewed the system logic utilize by the metric reporting engine to calculate the numerator, denominator, result for accuracy.
2. Prior to performing the recalculation of the metric results, E&Y modified the systemic logic received from Verizon to identify the individual transactions included in both the numerator and denominator.
3. Recalculated the performance results for the Evaluation Period.

The result of procedures 2 and 3 above are utilized to compare the results of our transactions testing procedures noted above.

Business Rule Application Process and Code Review

We documented the process by which metric guidelines are systematically coded specifically identifying the following:

a. Process to implement/change logic utilized to apply metric guidelines
b. Testing process for changes to code
c. Approval process for Change Control Requests within the Verizon proprietary change controls management system

To determine whether the Company's processes are designed to apply the guidelines properly, we reviewed the systemic logic utilized to apply the guidelines for a judgmental sample of metrics representative of each domain and measurement type (exclusions, inclusions, calculation of the numerator and denominator, and product disaggregation rules). We compared the computer program code and manual processes for appropriateness according to the metric guidelines.

In addition, changes made to computer program code completed or issued after the Evaluation Period that may have affected reported results were reviewed to identify whether the criteria applied to transactions was in accordance with the metric guidelines. We completed the following procedures for each change control request:

1. Evaluated the nature of the change to determine whether the change would have impacted the reported results for the Evaluation Period.
2. If it was determined that the change impacted the results, we requested the Company provide E&Y with an impact assessment. The impact assessment enabled E&Y to conclude on the nature of the change and was utilized to assess the relative materiality the change had on reported results for the Evaluation Period.

Statistical Methodology Validation and Testing

Once all business rules have been applied, the calculation logic is applied resulting in a numerator, denominator, metric result and related z-scores (parity measures only). To test the mathematical computation of the z-score, we performed the following recalculation procedures:

1. Reviewed and validated the algorithms utilized to calculate the metric results for the Evaluation Period were in compliance with the guidelines; and,
2. Where metrics are parity, recalculated the respective z-score.

Specifically when calculating the z-score utilizing permutation testing algorithms, there are two different types of measures for which we independently calculated the z-score: proportion or counted measures and measured variables or means and averages. For proportion measures, we obtained the numerator, denominator and result and, using Appendix D of the PAP, we independently recalculated the z-score. For measured variables, we obtained numerator, denominator, result and detailed transaction level detail and independently recalculated the z-score.

Scoring, Reporting and Analysis

We documented the process and controls related to timeliness and completeness for the monthly scoring process, the monthly review and approval process prior to filing, and the process for filing the report.

To test the calculation of the metric score, we independently scored each metric based on the requirements set forth within the PAP. We reviewed the reports filed with the DTE to test the completeness and timeliness of reporting based on the requirements set forth within the PAP.

Analytical Review

To evaluate the reasonableness of reported results, we performed analytical review procedures of the metric results, at the sub-metric level, covering the period March 2004 through September 2004. Our analytical procedures focused on the September metrics compared to the other months within our analysis. If a specific September metric result was similar to the other six months, no additional procedures were required; however, if the September metric result was an outlier based on the other six month's results, additional evaluation was required. This review primarily focused on analyzing transaction volumes, fluctuations in results, and reasons for parity or out-of-parity results for the period under examination. In addition, we reviewed instances where one metric denominator equals another metrics denominator.

Site Visits

Some fields within individual transactions used in metric reporting are manually entered by Verizon personnel. To observe and validate data inputs occurring at the manual source, we performed walkthroughs at a National Marketing Centers (NMC) and a Regional CLEC Coordination Center (RCCC) servicing the state of Massachusetts. During these visits, we observed transactions being processed and documented the:

a. hot cut process;
b. service order entry process;
c. process for handling error fall-out; and,
d. manner in which orders are completed and transactions are coded within the system (including the assignment of jeopardy codes).

Additionally, during these visits, we interviewed location managers and obtained relevant operational documentation including education and training policies and procedures, quality assurance policies and procedures, and employee hiring and performance evaluation processes and procedures.

Data Storage, Retention and Security

We documented data back-up and archiving procedures, the data retention requirements as set by Verizon, and access controls over data utilized in the metric calculation. We focused only on the reporting engine environment where data used in the metric calculation is maintained and stored. To test whether metric data is appropriately maintained and stored, we tested a sample of archived source data files for availability.

Through interviews and review of methods and procedures over security within the metric reporting environment, we documented the key controls over security of critical data elements utilized for calculation of the metric results, including identification of both preventative and detective controls. To test the access controls around the metric reporting engine, we then selected a sample of users with access to change metric data in metric reporting engine environment and tested for appropriateness and segregation of duties given the individuals job responsibilities.

Bill Credit Process and Testing

From a list of bill credits paid, we judgmentally selected one facilities based and one non-facilities based CLEC that had a credit applied as well as CLEC that did not have a credit applied. Utilizing the PAP, we recalculated the bill credit amount and compared it to Verizon's results.

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